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EVALUATION OF ERTS-1 DATA APPLICATIONS TO GEOLOGIC MAPPING, STRUCTURAL
ANALYSIS AND MINERAL RESOURCE INVENTORY OF SOUTH AMERICA WITH SPECIAL
EMPHASIS ON THE ANDES MOUNTAIN REGION

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Type I Progress Report for Period 1 May - 30 June, 1973

Prepared for:
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E74-10405) EVALUATION OF ERTS-1 DATA
APPLICATIONS TO GEOLOGIC MAPPING,
STRUCTURAL ANALYSIS AND MINERAL RESOURCE
INVENTORY OF SOUTH AMERICA (Geological
Survey)

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Type I Progress Report
ERTS-1

- a. Title: Geologic Mapping, Structural Analysis and Mineral Resource Inventory of South America
ERTS-A Proposal No. SR-E189
- b. GSFC ID No. of P.I.: IN-012
- c. Statement and explanation of any problems that are impeding the progress of the investigation.

A deluge of ERTS-1 data from the February-March data collection period flooded our office so that much of the interpretive work had to be suspended to catalogue the data. Additional help was sought, and Stuart Marsh, Scientific Aid, got us through the crisis.

- d. Discussion of the accomplishments during the reporting period and those planned for the next reporting period.

Twenty-four sets of images (9x9 pos. trans.) were sent to Dr. Eduardo Methol, Argentina Co-investigator; 11 sets to Dr. Eduardo Gonzales, Venezuela; 8 sets to Mr. Tassir Kassem, Colombia; 17 sets to Dr. Carlos Brockmann, Bolivia; 33 sets to Ing. Epifanio Suvo Rivera, Peru; 10 sets to Dr. Luis Henrique de Azevedo, Brazil.

Kenneth Segerstrom, USGS, Denver, completed geologic analysis of three images (1188-13545, 1188-13551 and 1188-13554). The results of this study are outlined below.

- e. Discussion of significant scientific results and their relationship to practical applications or operational problems. (Abstract)

Segerstrom delineated many grabens (down-faulted blocks) not shown on published maps of Argentina nor of South America. The faults that border the grabens are better appreciated in ERTS-1 imagery than on air photos or on the ground because of the masking effect of alluvial fill deposits. In frame no. 1188-13545 a change in local prevailing wind direction from east to southeast is noted in sand streams. In frame no. 1188-13551 he was surprised to see that Solar del Hombre Muerto was covered with water. In November 1971 Segerstrom drove across the salt pan several times without wetting his wheels. Segerstrom was able to differentiate

the following rock and soil classes: granites, metamorphic, volcanic rocks, Tertiary and Quaternary clastic deposits and salt pans. Portions of railroads and highways as well as small towns were identified. In frame 1188-13551 the Incahuasi Gold mine and the Tincalayu Borax Mine were located.

- f. A listing of published articles and/or papers, pre-prints, in-house reports, abstracts of talks, that were released during the reporting period:

On May 23, 1973, W. D. Carter presented the following paper at the COSPAR Meeting, Konstanz, F. R. G. "EROS Program and ERTS-1 Satellite Applications to Geophysical Problems," By W. D. Carter (USA-IUGS). (Abstract attached)

- g. Recommendations concerning practical changes in operations, additional investigative effort, correlation of effort and results as related to a maximum utilization of the ERTS system:

None

- h. A listing by date of any changes in Standing Order Forms:

None

- i. ERTS Image Descriptor Forms

See attachments

- j. Listing by date of any changed Data Request forms submitted to Goddard Space Flight Center/NDPF during the reporting period:

None

- k. Status of Data Collection Platforms:

Not applicable